Space Weather Forecast

Issued on Monday, 31 January 2022 at 00:27 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Chance of Moderate Geomagnetic Storm day 2 and 3 (1st and 2nd Feb). Chance of Moderate flares/R1-R2 Radio Blackouts.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity is Low with a number of Common-class flares, mostly originating from the large sunspot group near centre of the disc in the northern hemisphere, and also two active regions rotating onto the eastern limb. A coronal mass ejection (CME), is forecast to impact Earth late on day 1 or day 2 (1st or 2nd Feb). Five other sunspot regions are on the visible disc with two regions emerging across the eastern limb.

Solar Wind / Geomagnetic Activity: The solar wind remains at elevated to slightly elevated levels, between 450km/s and 550 km/s through the period. The magnetic field has been weak and the important north-south direction has also been weak. Geomagnetic Activity was Quiet to Unsettled.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate solar activity is expected through the period, with a chance of further Moderate-class flares, and a slight chance of a Strong flare. These again currently most likely from AR2936, and from the two active regions rotating across the eastern limb.

Solar Wind / Geomagnetic Activity: An observed CME from 29 Jan is forecast to impact Earth on either day 2 or 3 (1st or 2nd Feb). Prior to this event elevated o slightly elevated solar winds on day 1 (31st Jan) are likely to decline towards Slow levels as the current high speed stream wanes. Enhancements are forecast from later on day 2 (01 Feb) from a high speed stream and the forecast impact of the CME. Geomagnetic activity is expected to be Quiet to Unsettled with a chance of isolated Active intervals and a Chance of a Moderate Storm interval on either day 2 or 3 (1st or 2nd Feb).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to most likely remain at background levels, however probabilities increase slightly through the period as the large sunspot group transits west.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.

Met Office

Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	40	50	20
Strong	G3	No	1	10	20	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	50	50	40	40
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	10	10
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.